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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/389,826	09/03/1999	HANS U. SCHROEDER	PHN-17.073	5932

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EXAMINER

NADAV, ORI

ART UNIT PAPER NUMBER

2811

DATE MAILED: 03/31/2004

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Paper No. 0

Application Number: 09/389,826  
Filing Date: September 03, 1999  
Appellant(s): SCHROEDER ET AL.

Ronald A. D'Alessandro  
For Appellant

EXAMINER'S ANSWER

MAILED  
MAR 31 2004  
GROUP 2800

This is in response to the appeal brief filed 1/14/2004.

**(1) Real Party in Interest**

A statement identifying the real party in interest is contained in the brief.

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**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

The rejection of claims 1-9 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

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**(8) Claims Appealed**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) Prior Art of Record**

5,572,394

Ker et al.

11-1996

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Ker et al. (5,572,394).

Ker et al. teach in figure 9 a semiconductor device having an ESD protection means being an SCR and a gated electrode, provided in a surface area (P-SUBSTRATE) of a first conductivity type having a single well N-WELL (the middle N well where resistor RW3 is located) of a second conductivity type,

wherein a surface zone (P+) of the first conductivity type is forms a first anode and cathode area of the SCR element,

the surface area has a surface zone N+ (the N+ region located to the right of the N well) of the second conductivity type, noted as a first zone, situated remotely from the well and forming a second anode and cathode area of the SCR element,

the gated diode (located above "NTLSCR1") containing a gate insulated from the surface area and a highly doped (N+) second conductivity type surface zone aligned to

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the gate denoted as a second zone, the second zone (the N<sup>+</sup> region located to the right of the gated diode) partly overlaps the well of the second conductivity type, wherein the second zone stretches out only along a part of the periphery of the well (the second zone stretches along the left part of the well and is not present along the right part of the well), whereas the first zone N<sup>+</sup> (the N<sup>+</sup> region located to the right of the N well and situated "remotely from the well") is provided along at least another part of this periphery which is free from the second zone (the right part of the periphery of the well is free from the second zone), and an anode and cathode of the SCR element in the first zone are not shielded from one another by the gated diode.

Regarding claim 2, Ker et al. teach in figure 11 the gate of the gated electrode substantially stretches out only along the part of the periphery of the well along which also the second zone stretches out.

Regarding claim 3, the gated diode having a further surface zone (N<sup>+</sup>) of the second conductivity type deposited in the surface area of the first conductivity type and forming the other of the source/drain zones of the transistor, wherein the first zone being situated at a shorter lateral distance from the surface zone provided in the well than the further surface zone.

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Regarding claim 4, although Ker et al. do not explicitly disclose a further zone and a first zone form a second conductivity type zone this feature is inherent in Ker et al.'s device, because Ker et al.'s structure is identical to the claimed structure.

Regarding claim 5, the first and second conductivity types are p and n conductivity types, respectively, wherein the first zone and the first conductivity type zone in the well form the cathode and anode of the SCR element, respectively.

Regarding claim 6, Ker et al. teach the well of the second conductivity type is arranged in the form of a longitudinal zone, the surface zone of the first conductivity type is formed by a longitudinal zone in the well of second conductivity type which well has in its center an opening at the position of which a highly doped zone of the second conductivity type is provided which forms a contact area for the well of second conductivity type.

Regarding claim 9, Ker et al. teach the cathode of the SCR is provided along the part of the periphery of the well of the second conductivity type that is free from the at least two gates.

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ker et al.

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Regarding claims 7 and 8, Ker et al. teach substantially the entire claimed structure, as applied to claims 1 and 6 above, including the gated diode being arranged as a MOS transistor having a further zone of the second conductivity type. Ker et al. do not explicitly state forming the gated diodes on the right-hand end of the longitudinal zone. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the gated diodes on the right-hand end of the longitudinal zone which comprises the insulated gate and the highly doped second conductivity type surface one which partly overlaps the well of the second conductivity type in Ker et al.'s device, since it is well within the skills of an artisan to determine the physical location of the two gated diodes on the circuit board by using layout criteria, subject to routine experimentation and optimization.

**(11) Response to Argument**

Appellant argues that Ker et al. do not teach a gated diode containing a gate insulated from the surface area and a highly doped second conductivity type second zone aligned to the gate, the second zone partly overlaps the well of the second conductivity type, wherein the second zone stretches out only along a part of the periphery of the well, whereas the first zone is provided along at least another part of this periphery which is free from the second zone, because figure 11 of Ker et al. depicts potentially analogous regions are co-extensive along their corresponding n-wells.. Appellant further argues that figure 4 of the claimed invention depicts a second

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zone stretches out only along a part of the periphery of the well, and a first zone 14, 19 is provided along another periphery of the well which is free from the second zone.

Figure 9 of Ker et al. depicts a gated diode containing a gate insulated from the surface area and a highly doped second conductivity type second zone N<sup>+</sup> being aligned to the gate. The second zone N<sup>+</sup> (the N<sup>+</sup> region located to the right of the gated diode) partly overlaps the N well of the second conductivity type. Since the second zone overlaps only part of the N well (i.e., the second zone N<sup>+</sup> overlaps only the left side of the N well and not the right side of the N well), it stretches out only along part of the periphery of the well. The first zone (the N<sup>+</sup> region located to the right of the N well and situated "remotely from the well"), is provided along at least another part of this periphery which is free from the second zone (the right part of the periphery of the N well is free from the second zone).

Figure 11 of Ker et al. does not depict the second zone stretches out along the right side of the N well and certainly not along the entire periphery of the well. Thus, the first zone is provided along at least another part of this periphery which is free from the second zone, as claimed.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

O.N.  
March 25, 2004

Conferees:

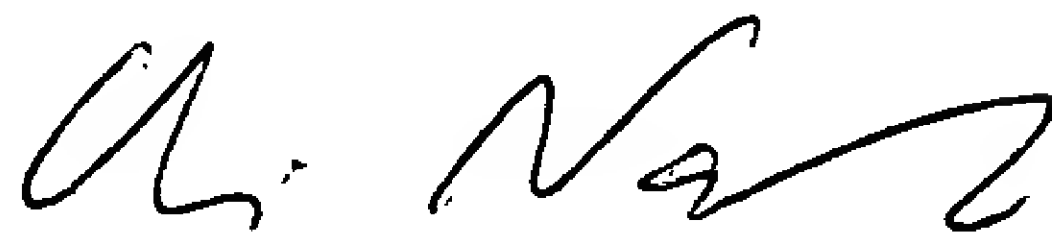
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